

**DR. SUDHAN DEBNATH**  
Principal-in-Charge & Associate Professor  
Netaji Subhash Mahavidalaya, Udaipur, Gomti Tripura

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**Education**

- Doctor of Philosophy- Tripura University, 2007
- Master of Science in Chemistry- Tripura University, 1996
- Bachelor of Science in Chemistry (Honours)- MBB College, under Tripura University, 1994
- Diploma in Computer Application (DCA) - FEII, 2001.

**Teaching Experience**

- Associate Professor-April 2016-Present
- Assistant Professor- April 2002- April 2016
- Post Graduate Teacher-January 1997-April 2002

Name of the Course	Conducted by	Duration	Sponsoring Agency
Orientation Programme	UGC-Academic Staff College, Gauhati University from 5 <sup>th</sup> September to 2 <sup>nd</sup> October, 2005	28 days	UGC
Refresher Course	UGC-Academic Staff College, Jadavpur University, on “Thrust areas on Development of Natural Products” from November 20, 2008.	21 days	UGC
Summer School	A national School on New Dimension to NMR: From Molecule to Human Behaviour, NEHU, Shillong 2005 held during May 23-June 2005 at NEHU, Shillong.	12 days	IISc Bangalore
Winter School	Green Chemistry Winter School on “Research, Teaching and Applications: Exploring Opportunities in Green Chemistry”, Organized by the Department of Chemistry, IIT, Guwahati, 7-22 March, 2011	16 days	DST SERC
CATC	Combine Annual Training Camp, Organized by 13 <sup>th</sup> Tripura BN, NCC, 20 - 29 January 2008 at Salbagan, Agartala	12 days	NCC, 13 <sup>th</sup> Tripura BN of NER

## **Academic Training**

### **Award**

- Awarded JRF-CSIR June 1999, Joint UGC-CSIR NET Examination

### **Area of Interest**

- Natural Product Research
- Computer Aided Drug Design

### **Administrative Training**

- Head of the Department of Chemistry at ICV college: August 2005- June 2010
- Head of the Department of Chemistry at MBB College: July 2018- June 2021

### **Memberships**

- Member Management Committee, ICFAI University, Tripura, 2017-2018
- Life member, 'Tripura Chemical Society', MBB College, Agartala, Tripura.
- Life member, 'National Magnetic Resonance Society', SIF, IISc-Bangalore-560 012, India.
- Life member, "Indian Red Cross Society", Tripura Branch.

### **Publications in Scientific Journals**

1. **Debnath S\***, Sen D. Mushrooms are potential foods against cancer: identified by molecular docking and molecular dynamics simulation. *Nat Prod Res.* **2021**, 11:1-6. doi: 10.1080/14786419.2021. (\*=corresponding author).
2. Chakraborty, S., Saha, A. K., Sharma, S. Chakraborty, R. **Debnath, S.** A hybrid whale optimization algorithm for global optimization. *J Ambient Intell Human Comput.* **2021**. <https://doi.org/10.1007/s12652-021-03304-8>
3. Debnath, P\*. Bhaumik, S. Sen, D. Muttineni, R. K. **Debnath, S\***, Identification of SARS-CoV-2 Main Protease Inhibitors Using Structure Based Virtual Screening and Molecular Dynamics Simulation of DrugBank Database, *Chemistry Select.* **2021**, 6, 4991 –5013. <https://doi.org/10.1002/slct.202100854>

4. Sen D, Bhaumik S, Debnath P, **Debnath S\***. Potentiality of *Moringa oleifera* against SARS-CoV-2: identified by a rational computer aided drug design method. **J Biomol Struct Dyn.** **2021**. 15:1-18. doi: 10.1080/07391102.2021.1898475
5. Debnath, B. Debnath, P. Ghosh, R. **Debnath, S\***. In silico identification of potential inhibitors of SARS-CoV-2 papain-like protease from natural sources: A natural weapon to fight COVID-19, **Coronaviruses**, **2020**, [https://DOI: 10.2174/2666796701999201203211330](https://doi.org/10.2174/2666796701999201203211330)
6. Debnath P\*, Debnath B, Bhaumik S, **Debnath S\***. In Silico Identification of Potential Inhibitors of ADP-Ribose Phosphatase of SARS-CoV-2 nsP3 by Combining E-Pharmacophore- and Receptor-Based Virtual Screening of Database. **ChemistrySelect.** **2020**, 5(30):9388-9398. [https://doi: 10.1002/slct.202001419](https://doi.org/10.1002/slct.202001419).
7. Sen D, Debnath P, Debnath B, Bhaumik S, **Debnath S\***. Identification of potential inhibitors of SARS-CoV-2 main protease and spike receptor from 10 important spices through structure-based virtual screening and molecular dynamic study. **J Biomol Struct Dyn.** **2020**, 18:1-22. doi: 10.1080/07391102.2020.1819883.
8. Debnath B, Saha AK, Bhaumik S, **Debnath S\***. In Silico Identification of Potential Inhibitors of the Main Protease of SARS-CoV-2 Using Combined Ligand-Based and Structure-Based Drug Design Approach. **Eurasian Journal of Medicine and Oncology**, **2020**. 4(4):336–348. DOI: 10.14744/ejmo.2020.91768
9. Sarkar, A. Shilkar, D. Jayaprakash, J. Maity, A. Sardar, S. **Debnath, S.** Debanjan Sen, Virtual screening assisted identification of small molecule against 2019- novel coronavirus protease enzyme, **Journal of Pharmaceutical Chemistry**, **2020**, 7: DOI: <http://dx.doi.org/10.14805/jphchem.2020.art116>
10. **Debnath S**, Kanakaraju M, Islam M, Yeeravalli R, Sen D, Das A. In silico design, synthesis and activity of potential drug-like chrysin scaffold-derived selective EGFR inhibitors as anticancer agents. **Comput Biol Chem.** **2019** 83:107156. doi: 10.1016/j.compbiolchem.2019.107156.
11. **Debnath S\***, Debnath T, Bhaumik S, Majumdar S, Kalle AM, Aparna V. Discovery of novel potential selective HDAC8 inhibitors by combine ligand-based, structure-based virtual

screening and in-vitro biological evaluation. *Scientific Report*. **2019**, 9(1):17174. doi: 10.1038/s41598-019-53376-y.

12. Manupati K, **Debnath S**, Goswami K, Bhoj PS, Chandak HS, Bahekar SP, Das A. Glutathione S-transferase omega 1 inhibition activates JNK-mediated apoptotic response in breast cancer stem cells. *FEBS J*. **2019**, 286(11):2167-2192. doi: 10.1111/febs.14813.
13. Roy, B.C. Debnath, L. Chaudhuri A. **Debnath, S**. A Review on Ozone Layer Depletion, Effects & it's Solution, *Int. J. Adv. Res.* **2018**, 6(4), 385-392, Article DOI:10.21474/IJAR01/6871
14. Manupati K, Dhoke NR, Debnath T, Yeeravalli R, Guguloth K, Saeidpour S, De UC, **Debnath, S**, Das A. Inhibiting epidermal growth factor receptor signalling potentiates mesenchymal-epithelial transition of breast cancer stem cells and their responsiveness to anticancer drugs. *FEBS J*. **2017**, 284(12):1830-1854. doi: 10.1111/febs.14084.
15. Roy, B.C. Pal, D. Choudhuri, A. **Debnath, S**. Climate Status of Tripura: A Tight-Rope Walking, *International Journal of Advance Research and Development*, **2017**, 72-84
16. **Debnath, S\***. Debnath, T. Majumder, M. K. Arunasree, V. Aparn, A combined pharmacophore modeling, 3D QSAR, virtual screening, molecular docking and ADME studies to identify potential HDAC8 inhibitors, *Medicinal Chemistry Research*, **2016**, 2434-2450, doi: 10.1007/s00044-016-1652-5.
17. T. Debnath, S. Majumdar, A. M. Kalle, V. Aparna, **S. Debnath\***, Identification of potent histone deacetylase 8 inhibitors using pharmacophore-based virtual screening, three-dimensional quantitative structure–activity relationship, and docking study, *Research and Reports in Medicinal Chemistry*, **2015**, 5 21–39 DOI: 10.2147/RRMC.S81388
18. De, U.C. Debnath, T. Sen, D. **Debnath\***, S. Journal of Advanced Pharmaceutical Technology & Research, Three-dimensional quantitative structure-activity relationships and docking studies of some structurally diverse flavonoids and design of new aldose reductase inhibitors, **2015**, 6, 13-18 doi:10.4103/2231-4040.150366

19. De, U.C. **Debnath**, S. Sen, D. Studies on structural insight of 2-amino-6-arylsulfonylbenzoxonitrile derivatives as anti-HIV agents, *IJRPC*, **2014**, 4(3), 528-539
20. Debnath, T. De, U.C. **Debnath\***, S. 3D-QSAR, Docking and ADME study on flavone derivatives as human breast cancer cell line MCF-7 inhibitors, *IJRPC*, **2014**, 4(4), 808-818
21. **Debnath**, S. Nath, P. Nath, R.K. Identification of Novel HDAC8 Inhibitors Using Pharmacophore Based Virtual Screening, 3D QSAR and Molecular Docking Approach, *Am. J. PharmTech Res.* **2014**, 4(6), 253-267, doi: 10.21276/ajptr
22. **Debnath\***, S. Banik, R. Debnath, T. In Silico Discovery of Small Molecule HDAC2 Inhibitors using Virtual Screening, Atom based 3D QSAR Model, Docking Analysis and ADME study, *Am. J. PharmTech Res.* **2014**, 4(5), 607-624, doi: 10.21276/ajptr
23. Ajanneyulu, B. Ravinder, T. **Debnath**, S. Kanjilal, S. Chakrabart, P.P. Lipid Classification and characterization of *Terminalia Belerica* Seed Oil From Tripura, *Journal of Lipid Science and Technology*, **2014**, 46 (4), 145-149
24. Majumder, K. **Debnath**, S. Sinha, R.K. Effect of crude methanolic stem extract of *Tinospora cordifolia* and *T. alabarica* on root meristematic activity in *Allium cepa.*, *Advances in Plant Sciences*, **2013**, 26, 179-183
25. **Debnath**, S. De, U.C. Sen, D. Dinda, B. Pharmacophore Modeling and 3D QSAR analysis of flavonoids and congeners active against A549 cell line, *Int.J.Res.Pharm.Sci.*, **2012**, 3, 206-214
26. B. Dinda, **S. Debnath**, S. Majumder, Noriko Sato, Y. Harigaya, New iridoid glucoside from *Wendlandia tinctoria* roots, *Chinese Chemical Letters*, **2011**, 22(10), 1233-1236, , Doi: 10.1002/jccs.201980401
27. B. Dinda, **S. Debnath**, R. Banik, Naturally Occurring Iridoids & Secoiridoids. An Updated Review, Part 4, *Chem. Pharm. Bull.*, **2011**, 59 (7), 803-833, Doi: 10.1248/cpb.59.803
28. B. Dinda, **S. Debnath**, R. Banik, N. Sato & Y. Harigaya, Iridoid Glucosides from *Wendlandia tinctoria* roots, *Natural Product Communication*, **2011**, 6(6), 747-748, doi:10.1177/1934578X1100600601

29. B. Dinda, **S. Debnath**, B. Mohanta, and Y. Harigaya, Naturally Occurring Triterpenoid Saponins. A Review, *Chemistry & Biodiversity*, **2010**, 7 (10), 2327-2580. (Full Volume) doi: 10.1002/cbdv.200800070
30. B. Dinda, B. Mohanta, **S. Debnath**, B. Ghosh, S. Arima, N. Sato and Y. Harigaya, Iridoid Glucosides from leaves and stem barks of *Parkia javanica*, *J. Asian Nat. Prod. Res.*, **2009**, 11(3), 229-235, doi: 10.1080/10286020902727280
31. B. Dinda, **S. Debnath** and Y. Harigaya, Naturally Occurring Secoiridoids and Bioactivity of Naturally Occurring Iridoids and Secoiridoids, Review, Part 2, *Chem. Pharm.Bull.*, **2007**, 55(5), 689-728, doi: 10.1248/cpb.55.689
32. B. Dinda, **S. Debnath**, Y. Harigaya, Naturally Occurring Iridoids. A Review, Part 1, *Chem. Pharm. Bull.*, **2007**, 55(2), 159-222, doi: 10.1248/cpb.55.159
33. B. Dinda, **S. Debnath**, S. Majumder, S. Arima, N. Sato and Y. Harigaya, A new bis-iridoid glucoside from *Mussaenda incana*, *Chinese Chemical Letters*, **2006**, 17 (10), 1331-1334, Doi: 10.1007/s11418-008-0273-9
34. B. Dinda, **S. Debnath**, S. Arima, N. Sato and Y. Harigaya, Iridoid glucosides from *Wendlandia tinctoria* roots, *Chem. Pharm. Bull.*, **2006**, 54, 1030-1033. doi: 10.1248/cpb.54.1030
35. B. Dinda, **S. Debnath**, S. Majumder, S. Arima, N. Sato, Y. Harigaya, Chemical constituents of *Mussaenda incana*, *Indian J. Chem.*, 44B, **2005**, 2362-2366
36. B. Dinda, **S. Debnath**, S. Arima, N. Sato and Y. Harigaya, Chemical constituents of *Lasia spinosa*, *Mussaenda incana* and *Wendlandia tinctoria*, *J. Indian Chem. Soc.*, **2004**, 81, 73-76

### **Chapter in Edited Book**

1. Biswanath Dinda, **Sudhan Debnath**, Natural Products Phytochemistry, Botany and Metabolism of Alkaloids, Phenolics and Terpenes, Monoterpenes: Iridoids, Volume 1, 2013, 3009-3068, ISSN/ISBNNo. 9783642221446 3642221440, DOI 10.1007/ 978-3-642-22144-6. Publisher: Springer Heidelberg New

### **Research Projects completed**

1. University Grants Commission, North Eastern Regional Office was sanctioned a Minor Research Project Titled “Chemical constituents of *Lasia spinosa* and some other medicinal plants of Tripura” (No.F.5-50/2003-04 (MRP/NERO)/1735).
2. UGC-NERO sanctioned me another Minor Research Project dated 31<sup>st</sup> March 2008 on “Chemical constituents of *Syzygium syzygioides* (*Myrtaceae*), *Allophylus kobi* and some other medicinal plants of Tripura and study of their antimicrobial, anticoagulant activity” (No. F. 5-7/2007-08 (MRP/NERO)/6162)
3. ‘Molecular Dynamics Studies of the HDAC8 isoform, Virtual Screening of Potential HDAC8 Inhibitors using Structure and Ligand Based Studies – Synthesis and Biological Screening of Novel HDAC8 inhibitors’ DBT, Govt. of India. (F.No. BT/327/NE/TBP/2012 Dated: 21.03.2013).

### **Paper Presented in International Seminar/Conference**

1. “Drug target for SARS-COV-2 and potentiality of Indigenous natural products”, on 20.06.2020, 11:00 a.m. IST, An International WEBINAR SERIES “WISSEN-2020”. Organized by BCDA College of Pharmacy & Technology, Kolkata, India
2. COVID-19 and its remedy using natural products, International Web conference, July 9-10, organized by MBB University. Tripura, India
3. *In silico* identification of cervical cancer inhibitory plants by pharmacophore-based virtual screening, docking, ADME filtration and molecular dynamics simulation studies, International conference on Drug Discovery-2020, Feb 29 – Mar 2, 2020, organized by Schrodinger Inc, USA in collaboration with BITS-Pilani, Hyderabad
4. Physico-Chemical Characteristic of *Terminalia Belerica* Seed Oil. 69<sup>th</sup> Annual Convention of Oil Technologist’s Association of India and International Conference on Sustainable Technologies and Futuristic Trends: Oilseeds-Oils Processing Surfactants & Expo 2014, 14–16, Organized by Oil Technologist’s Association of India

5. Iridoid glucosides from *Wendlandia tinctoria* root, International Conference on “Emerging Areas of Chemistry ICEAC-2011” 12-14 January **2011**, Organized by Department of Chemistry, Tripura University
6. Ligand based 3D-QSAR analysis and discovery of new oxygenated chalcone’ derivative as potential antileishmanial and anti-malarial agents, International Conference on “Emerging Areas of Chemistry ICEAC-2011” 12-14 January **2011**, Organized by Department of Chemistry, Tripura University
7. Iridoid Glycosides of *Wendlandia tinctoria*, International Conference on Chemistry Biology Interface: Synergistic New Frontiers, 21-26 November **2004**, Organized by Dr. B. R. Ambedkar Center for Biomedical Research, University of Delhi.

#### **Paper Presented in National Seminar/Conference**

1. Identification of natural products against COVID-19 using computer aided drug design, 11-13 September 2020 National E-conference organized by Dept. of Physics Women’s college & Dharmanagar college.
2. In-silico identification of novel HDAC8 inhibitors by ligand-based and structure-based drug design method. National Seminar on Recent Trend of Research in Chemistry - A New Horizon of Hopes’, August 8 – 9, **2015**, Organized by Department of Chemistry, Women’s college.
3. In-silico identification of novel HDAC2 inhibitors using ligand based and structure based drug design method, National seminar on recent trend of research in chemistry - a new horizon of hopes, **2015**, August 8 – 9, **2015**, Organized by Department of chemistry, Women’s college.
4. A combined pharmacophore modeling, 3D QSAR, virtual screening and molecular docking studies to identify potential HDAC8 inhibitors, National Conference 5<sup>th</sup> December **2014**, Organized by IIT Gauhati,
5. National Seminar on Green Chemistry & Nano-Science: Theory & Applications, National Conference, 20-21 July **2012**, Organized by Dept. of Chemistry, MBB College,
6. Pharmacophore modeling and 3D QSAR analysis of flavones and isoflavone derivatives with cytotoxicity against HeLa, Fifth National Conference on Surfactants, Emulsions and



Biocolloids-2011, December 27–29, **2011**, Organized by Dept. of Chemistry, TU and Indian Society for Surface Science and Technology, Kolkata.

7. Capacity Building in Health Care of Tribals of Tripura using Traditional Knowledge, National Seminar on Capacity Building of Students in Higher Education with Special Reference to Tribal Students in Tripura 16–17 November **2010**, Organized by MBB College, Agartala, West Tripura
8. Application of Green Procedure in Chemistry Laboratory-Beneficial for Environment, National Seminar on Management of Environment: North East India Perspective, 11–12 September, **2010**, Organized by Iswarchandra Vidyasagar College, Belonia
9. Traditional Knowledge of Medicine in Natural Product Research, Regional Seminar on Recent Trends in Chemistry, **2009**, Govt. Degree College, Dharmanagar,
10. Aqueous leaf extracts of *Syzygium syzygioides* (Myrtaceae) has anti-coagulant activity, National Seminar on Scope & Recent Development of Natural Products, 12-13 November 2010, Organized by ICV college, Belonia
11. Bioactive iridoid glycosides from *Wendlandia tinctoria*, National Symposium on Impact of Chemistry on Life and Society, 1-3 October **2004**, Organized by Department of Chemistry, Tripura University

### **Extra-Curricular Activities**

- i) Care Taker Officer, NCC, ICV College Unit, for one year from July, 2007 to September, 2008.
- ii) NSS Programme Officer for two years from 1<sup>st</sup> December 2002 at NSS ICV College Unit, Belonia, Tripura (S).
- iii) IGNOU Academic counsellor, evaluator, examiner of MBB College Study Centre (2608)-2010 – 2021

### **Seminar/Conference Organized (Organizing Secretary/Convener):**

- i) Three days workshop on ‘Computer Aided Drug Design’ organized by Department of Chemistry, MBB College, Agartala, in Collaboration with SCHRODINGER, Bangalore, India, 8-10 November 2013.

- ii) “One day Seminar on Recent Developments in Computer Aided Drug Design” organized by Department of Chemistry, MBB College, Agartala, in collaboration with SCHRODINGER, on 13 June 2011.
- iii) National Seminar on “Scope & Recent Development of Natural Products” 12-13 November 2010, arranged by me and accordingly UGC-NERO, CSIR, DST, DBT and NEC sanction it. But at the eleventh hour I have been transferred from ICV College to MBB College.